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(71) Applicant *(for all designated States except US)*: **MOLECULAR PROBES, INC.** [US/US]; 29851 Willow Creek Road, Eugene, OR 97402 (US).

(72) Inventors; and

(75) Inventors/Applicants *(for US only)*: **AGNEW, Brian** [US/US]; 2520 West Twenty-Third Avenue, Eugene, OR 97405 (US). **BEECHEM, Joseph** [US/US]; 46 Ridgeline Drive, Eugene, OR 97405 (US). **GEE, Kyle** [US/US]; 37699 Upper Camp Creek Road, Springfield, OR 97478 (US). **HAUGLAND, Richard** [US/US]; 3998 Southpointe Drive, Eugene, OR 97405 (US). **LIU, Jixiang** [US/US]; 2610 Windsor Circle East, Eugene, OR 97405 (US). **MARTIN, Vladimir** [US/US]; 2250 Kelsy Lane, Eugene, OR 97402 (US). **PATTON, Wayne** [US/US]; 3688 Wilshire Lane, Eugene, OR 97405 (US). **STEINBERG, Thomas** [US/US]; 1830 Washington Street, Eugene, OR 97401 (US).

(74) Agent: **ANDERSON, Koren**; 29851 Willow Creek Road, Eugene, OR 97402 (US).

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(54) Title: COMPOSITIONS AND METHODS FOR DETECTION AND ISOLATION OF PHOSPHORYLATED MOLECULES

(57) Abstract: The present invention relates to phosphate-binding compounds that find use in binding, detecting and isolating phosphorylated target molecules including the subsequent identification of target molecules that interact with phosphorylated target molecules or molecules capable of being phosphorylated. A binding solution is provide that comprises a phosphate-binding compound, an acid and a metal ion wherein the metal ion simultaneously interacts with an exposed phosphate group on a target molecule and the metal chelating moiety of the phosphate-binding compound forming a bridge between the phosphate-binding compound and a phosphorylated target molecule resulting in a ternary complex. The binding solution of the present invention finds use in binding and detecting immobilized and solubilized phosphorylated target molecules, isolation of phosphorylated target molecules from a complex mixture and aiding in proteomic analysis wherein kinase and phosphatase substrates and enzymes can be identified.